SECOND ANNUAL REPORT

OF THE

NORTH DAKOTA

Agricultural Experiment Station.

January 30th, 1892.

Fargo, N. D.

TO THE GOVERNOR.

FARGO, N. D.
WALKER BROTHERS, PRINTERS.
1892.

SECOND ANNUAL REPORT

OF THE

NORTH DAKOTA

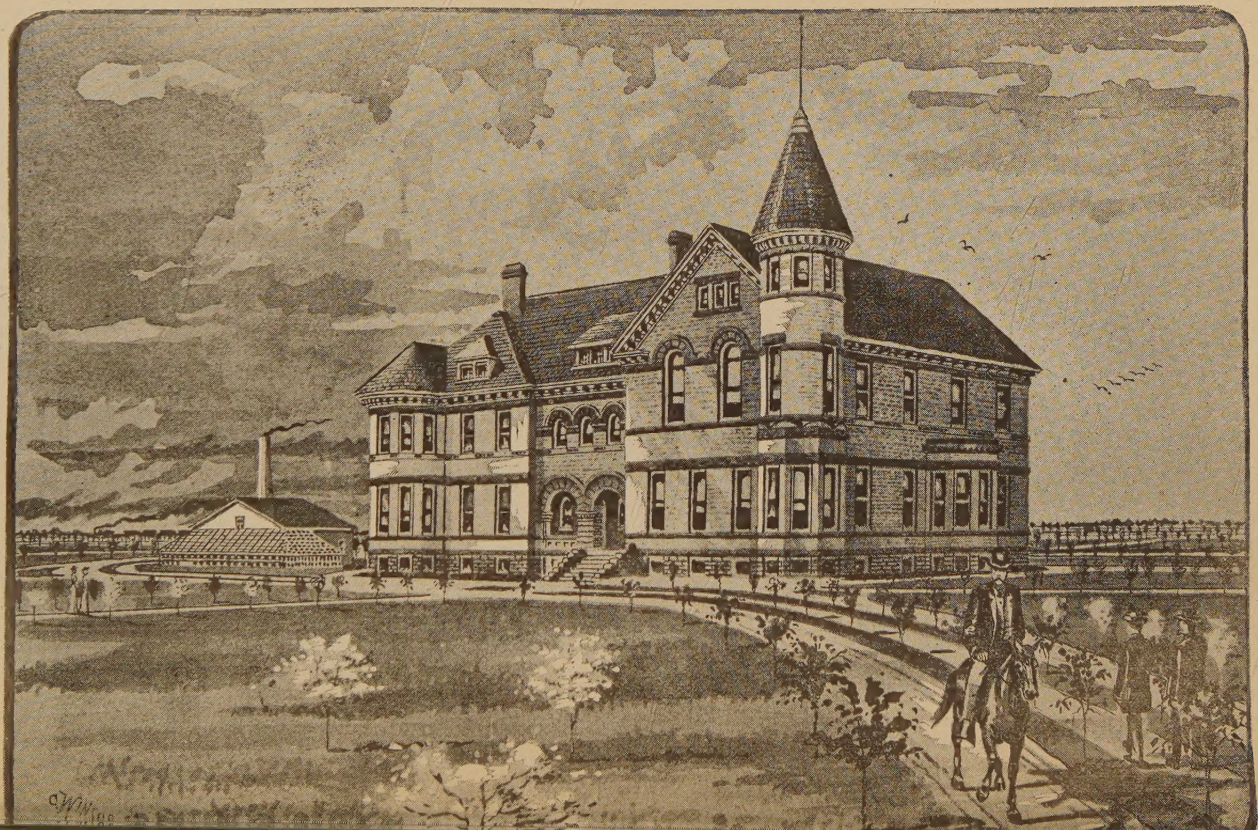
Agricultural Experiment Station.

January 30th, 1892.

Fargo, N. D.

TO THE GOVERNOR.

FARGO, N. D.
WALKER BROTHERS, PRINTERS.
1892.



BOARD OF CONTROL.

H. F. Miller, President, Fargo.

J. B. Power, Secretary, Power.

O. W. Francis, Fargo.

J. Lowell, Jr., Fargo.

P. McKenna, Fargo.

A. M. Tofthagen, Lakota.

Joseph Deschenes, Grafton.

S. S. Lyon, Treasurer, Fargo.

STATION STAFF.

H. E. Stockbridge, Ph. D.,
Director.

E. F. Ladd, B. S.,
Chemist.

T. D. Hinebauch, M. S., V. S.,
Veterinarian.

C. B. Waldron, B. S.,
Arboriculturist.

H. L. Bolley, M. S.,
Botanist.

W. M. Hays, B. S.,
Agriculturist.

L. B. Hibbard,
Farm Superintendent.

H. W. McArdle, B. S.,
Ass't in Horticulture.

W. H. Whalen, Ph. B.,
Ass't Chemist.

Wm. G. Hayden,
Secretary.

His Excellency, Hon. A. H. Burke, Governor of North Dakota:

SIR—In accordance with the Act of Congress, approved March 2nd, 1887, and at the request of the Board of Control of the North Dakota Agricultural Experiment Station, I submit herewith the Annual Report of that institution for the year ending February 1st, 1892, together with a financial statement of receipts and disbursements for the Government fiscal year ending with June 30th, 1891.

I remain sir, most respectfully yours,

H. E. STOCKBRIDGE,

January 30th, 1892. Director.

SECOND ANNUAL REPORT

OF THE

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION.

TO THE BOARD OF CONTROL:

The work of the North Dakota Agricultural Experiment Station for the year ending January 31st, 1892, covering the period for which the Second Annual Report is due, in accordance with the Act of Congress under which the station is organized, has consisted, as was unavoidable, chiefly of organization, equipment, and preparation for the future. At the time the last Annual Report was made, the institution had been but just organized and was without a permanent location or site, having been forced to temporarily occupy leased quarters, and to content itself with meagre facilities for the conduction of its work. The first and most essential movement toward overcoming these difficulties occurred with the granting, by the state legislature, to the Agricultural College, with which the station is connected, of a section of land adjoining the city of Fargo, through the act approved January 26th, 1891. The transfer of this domain, however, to the institution was subject to the leases then in force, and it was not until April 18th, 1891 that actual possession of any of this land was effected, and this by buying off the lessees of the southeast and northwest quarters of the section in question. Without the possession of land actual field investigation and the arrangement of

practical agricultural work were, of course, impossible, and the date at which possession was obtained, and the fact that only a portion of the permanent home of the institution was thus secured, precluded the possibility of the arrangement of any considerable amount of systematic experimental field work.

Laying out of the Grounds. Immediately on gaining possession of a portion of the grounds belonging to the institution, arrangements were perfected for the survey and laying out of the entire domain, the work of the experiment station receiving due consideration in the plan adopted. Walks, drives, boundaries, wind-breaks and division into fields and plots were surveyed, and the scheme for the future arrangement of the estate, including a large number of accurately surveyed plots for careful investigation, fields for extensive farm operations, gardens, vineyards, nurseries, an arboretum and other arrangements for the systematic development of the work of the experiment station in connection with that of the college, was perfected and committed to paper, and plans drawn to be systematically followed as time and means will permit.

Building. No sooner had a site for the institution been secured than arrangements were made for the erection of buildings, which should serve as the permanent home of the experiment station, as a department of the college with which it is connected.

The main building of the institution, an illustration of which serves as a frontispiece to this report, is a three-story building of buff brick, with base and trimmings of Duluth brownstone. The dimensions of the building are approximately 97x64 feet, with two wings

projecting toward the north, one of which does not appear in the illustration. The regularity of the edifice is further broken by a tower on the southeast corner extending one story above the main portion, a bay window one story in height, on the east end, lighting the reading room, and a swell front on the southwest corner opposite the tower, furnishing on the lower story practically a conservatory for the use of the botanical department. The lower floor of the building is utilized by the chemical department of the institution, and recitation and work rooms of the biological department, together with storage and toilet rooms. The main floor contains the general office of the college and experiment station, occupying a suite of three rooms, provided with fire-proof vault, beyond which at the right of the main entrance are the laboratories and offices of the botanical and veterinary departments of the experiment station occupying a suite of six rooms. This entire floor, together with the one above it, is finished in quartered oak. The main stairway leading from the hall, together with its heavy balustrades, is also of oak, forming a very attractive feature of the building, and leading to the upper floor provided with a general reception room and large auditorium capable of seating four hundred people, and the recitation, apparatus and laboratory rooms of the mechanical and physical department. All the floors in the building are of rock maple with oil finish, and the entire structure is heated by steam from a heat and power plant placed in a separate structure outside the main edifice, which building appears in the background of the illustration, together with the greenhouse for the use of the horticultural department of the

institution connected therewith. Inside this boiler house accomodations are also arranged for the mechanical department of the institution. This arrangement, however, is only a temporary one, as the entire structure will ultimately be needed for heating and power purposes.

The laboratories of the experiment station arranged for in this building are three, those of the departments of chemistry, botany aud veterinary science, while connected with the smaller building which furnishes heat and power, and in which is the plant for gas for both illuminating and laboratory purposes, is a greenhouse divided into two compartments, heated by steam, and intended particularly for experimental purposes and propagation of plants to be used in the experiments of the botanical and horticultural departments. The laboratories are now well equipped for the work of the institution, and in them systematic investigation of problems of agricultural importance is now under way.

Station Staff. This is constituted as at the time the last report was written, except that the following additions have been made thereto. Prof. W. M. Hays, B. S., Agriculturist; H. W. McArdle, B. S., Assistant in Horticulture; W. H. Whalen, Ph. B., Assistant in Chemistry, and L. B. Hibbard, Farm Foreman, besides which three special collectors were kept engaged on a botanical and grass survey of the state during the summer months, namely, Mr. A. B. Lee, Mr. John S. Wright and Mr. Frank G. Stockbridge.

Farm Crops. No arrangements for the beginning of practical farm work could have been perfected previous to the actual possession of the farm to be culti-

vated, so that on April 18th, after much farm work in our vicinity had been accomplished, the experiment station was not in possession of a single farm tool, implement, animal or laborer. No time was lost, however, in the securing of the requisite implements and stock for the conduction of the necessary farming operations, and the following crops were put in and finally harvested, with the yields as given:

Wheat, Scotch Fife	90	Acres:	Average Yield,	32	bu.	18	lbs.
Oats, White Russian	60	"	"	66	"	12	"
Barley, Golden	22	"	"	44	"	19	"

In addition to these crops several acres were put into a large number of prominent grasses, besides about ten acres of fodder corn, and five acres of sugar beets. The latter were grown primarily for experimental purposes, three varieties having been grown with the following yield of sugar:

Klein Wantzleben	13.21 Per Cent.
Desprez	12.07 " "
Valmorain	13.21 " "

At the time the beets were grown it was hoped that the completion of farm buildings would enable us to utilize the crop for feeding purposes for which sugar beets are pre-eminently adapted. Disappointed in this expectation, however, only about one acre was harvested for the use of our own stock. The remainder of the crop was sold in the field at the estimated cost of production, $1.25 per ton.

The conduction of the regular farm work was necessarily seriously hampered by the conditions under which we were forced to labor. Farm teams and men were utilized in excavating for the buildings erected, and for the transportation of all materials used in their construction; moreover, the absence of buildings

or quarters for teams or men on the farm, made constant travel to and from headquarters in town necessary, under which condition work was necessarily conducted at a serious disadvantage. Moreover, the condition of the farm at the time it came into our possession, some of it having been cropped by renters for twelve years, during which a portion of it became exceedingly foul with noxious weeds, was a further obstacle in the way of successful management. In spite of this last contingency, however, the crops actually grown by us were kept exceptionally free from weeds by constant vigilance and repeated pulling. It should be here recorded, moreover, that the station was without the services of a permanent agriculturist during the entire season, Prof. Hays not having been personally connected with the institution or present during the conduction of this work. I feel, therefore, that it is only just to accord hearty recognition of the efforts of the farm superintendent, Mr. Hibbard, in the management of the farm during the past season, under conditions anything but agreeable or propitious.

Outside Field Experiments. Recognizing the fact that the work of the experiment station should be conducted in the interests of the entire farming community of the state, and that with a territory so large, and with a diversity of climatic and soil conditions so great, field work and the production of crops in one locality must necessarily be controlled by different conditions from those pertaining to another within our limits, it was decided as absolutely inevitable, and, moreover, in every way desirable, that practical field experiments be undertaken in several different localities throughout the state, that so far as possible all

the different conditions of soil and climate might be investigated in their relations to crop production, in the hope that results obtained might be applicable to all parts of the state rather than to a single locality. With this end in view an attempt was made, which will be very largely augmented and increased as the work continues, to institute field trials in several different localities. The crops which were thus grown during the past season were sugar beets, wheat and several forage plants. The gentlemen who have conducted trials for us with one or the other of these crops in different localities are as follows: H. D. Hurley, Hillsboro; Martin R. Young, Villard; J. B. Power, Power; James Cudhie, Willow City; John Fried, Jamestown; C. H. Hagar, St. Thomas; S. Pelton, Dickinson; L. C. Pettibone, Dawson, and G. F. Galloway, Rolla.

Two varieties of wheat imported for the purpose, namely, the Anglo-Canadian and the "Earliest of All," were distributed in the hope that a hardy and earlier maturing variety than commonly grown would result. In this respect, however, the experiment proved that our hopes, so far as one year's trial could show, were ill founded, as neither variety showed desirable characteristics. The sugar beet seed distributed produced crops which were subjected to analysis by the station chemist and will be reported on in detail in the station Bulletin devoted to the sugar beet problem now in preparation. Among the grass and fodder seeds distributed, one, namely, Lathyris Silvestris, imported by the station direct from Europe, where it has recently gained a most enviable reputation, has made a most successful growth, has matured seed, and the indications now are that it will prove a valuable acquisition

to the cultivated fodder plants of the state. Its characteristics are such that it was hoped that this plant would furnish that most desirable crop, a fodder which could be successfully grown in the dryer portions of our state, and which would yield large quantities of nutritious fodder even in periods of severe drought by the ability of the crop to grow on dry soils with the minimum amount of moisture during the entire season. In Europe where the crop is successfully grown it thrives best on dry sand dunes where no other crop or scarcely vegetation of any kind can be made to grow. One season's growth is, of course, insufficient as a basis for prediction, particularly as the question of withstanding cold winters is as yet untested. The station, however, will sedulously watch the development of this crop, and report such results as follow its careful trial.

Field Collection. Recognizing the desirability of a thorough survey of the natural vegetable products of the state, particularly with reference to grasses and forage plants, the attempt was made during the past season to institute a botanical survey of the state, including collections from its entire flora. Aside from the regular members of the station staff, Professors Waldron, Bolley and McArdle, each of whom devoted considerable time during the summer to this work in person, three special collectors were engaged and kept in the field during the entire season, from the middle of June to the middle of September. The result of their labors was the gathering of specimens, including representatives of nearly the entire summer and autumn flora of the state, among them seventy different species of native grasses; of these latter, not only were her-

barium specimens secured, but in each case the entire plant in sufficient quantity, in bundles showing its form and growth from root to seed, were secured and have been arranged for permanent use. This work will be continued during the coming year, at the end of which time it is hoped, that the whole state with its entire representative native flora will have been covered. In connection with this grass survey, it is our expectation to subject promising varieties from different localities to cultivation in various parts of the state, in the hope that new resources of cultivatible forage crops may thus be secured.

Weather Service. At the request of the Director of the Station, early during the past season, the United States Weather Bureau consented to equip twenty volunteer weather observing stations in the state, from which records should be furnished the station, and also forwarded to Washington for utilization and general summary. Since July 1st, when the weather service of the Government was transferred to the Department of Agriculture, the number of these stations has been increased until now nearly every county in the state is represented, and from the records and observations thus made, it is reasonably hoped that much information concerning the climatic conditions pertaining to our state, particularly their relations to crop production, may be secured and utilized to the advantage of our agricultural industry.

Requests for Assistance. During the year the farming community of the state has repeatedly shown its appreciation of the existence of the station, and its confidence in the ability of the station staff to render practical assistance, either in the way of advice per-

taining to agricultural matters or assistance in meeting difficulties encountered. Hundreds of communications for personal assistance or advice have been received, and in every instance it is believed a specific reply has been furnished. The subjects covered by these requests for aid embrace almost every sphere of agricultural endeavor or farm procedure, including the combat of insect pests, noxious weeds, the determination of the character, injurious or otherwise, of plants, respecting the vitality of seed, the diagnosis of animal disease, the remedying of natural or acquired defects in soils, methods of planting varieties of different plants or crops adapted to different localities, and questions of a more or less abstruse or scientific character pertaining to farm affairs. In one instance the assistance rendered by the station has been of such a character as to be worthy of special record, namely, the threatened serious incursion of Rocky Mountain locusts in the northern part of the state, which required the personal attention of a member of the station staff during a considerable portion of the summer. The genuine migratory locust appeared and was located in five different counties, namely, Grand Forks, Walsh, Nelson, Cavalier, Ramsey and Rolette. In several localities, particularly along the Park River branch of the Great Northern Railroad in Grand Forks and Walsh counties, this visitation was of a very serious character and threatened for a time the entire devastation of the crops in the infected localities. The attention of the station was first called to the outbreak by the superintendent of the Dakota Division of the Great Northern Railroad located at Larimore, and within twenty-four hours from the time the first intimation

of the presence of the pest was received by the station, a member of our staff was on the ground actually engaged in combatting the pests. The methods resorted to, were the plowing of the stubble lands on which the insects were hatched, and the use of the hopper dozer or tar pan for the catching of the wingless insects. These pans were made and distributed by the station, and so effectively were they used that the threatened region was entirely protected from serious loss, although the danger may be gauged by the fact that there were single fields of a quarter section area, on which with a single trap, five to ten bushels of locusts were caught every day for ten days in succession. Through the action of the station serious ravage was prevented, and it is certainly a fact to the credit of Prof. Waldron, in whose hands the actual work in the field was placed, that the Agent of the United States Bureau of Entomology, sent into the state under the auspices of the Department of Agriculture to investigate and report upon the outbreak, reported to the Secretary of Agriculture that everything possible for the suppression of the pest had been done, and that there was no occasion for the Department to take action in the premises. It is best, however, here to state that there still exists reason for fear that the outbreak of the past season, will be followed by one of a more serious nature during the season to come, though it is hoped that through the experience gained, and the active efforts of parties most interested, serious trouble may be averted.

Publications. The station publications for the year have consisted of four regular Bulletins, and a special Bulletin furnishing information and recom-

mendations for combatting the locust pest alluded to above. The regular Bulletins thus far issued, numbered consecutively 1 to 4, have been devoted to the consideration of the following subjects: No. 1, Smuts of Cereal Grains; No. 2, Small Fruits; No. 3, Diseases of Sheep; No. 4, Potato Scab, and Methods for Hastening the Maturity of Potatoes. The first three were chiefly compilations, embracing, however, in each case, a certain amount of original work by members of the station staff. Bulletin No. 4, was devoted exclusively to a record of the results of investigations of the botanical department, and recorded facts both of practical and scientific value. Of these Bulletins an edition of 2,500 copies each was issued, which have been very generally distributed among the citizens of the state, in accordance with the Act of Congress. It would, however, give the station great pleasure to receive the addresses of farmers interested in our work to such an extent that the Bulletin editions would necessarily be largely increased in number.

Departments. The labors of each department into which the work of the experiment station has been divided have been systematically and conscientiously performed, in many cases with results already most gratifying, and in each case the foundation of work has been laid from which benefits to the farmers of the state are, it is believed, reasonably anticipated. The actual scope of the work in each department is best gathered from a summary of such work furnished by the member of the station staff in charge, and which is incorporated herewith.

CHEMICAL DEPARTMENT.

The work in the chemical department during the year 1891 has been as follows:

1. Analysis of samples of wheat collected from various parts of the state, also of the products from wheat.

Material is now nearly ready for a Bulletin on wheat, and its products in relation to conserving the fertility of the land.

Sugar beets have been grown by a large number of farmers throughout the state, and analysis made of all samples received at the laboratory in suitable condition for analysis.

The average per cent. of sugar for all the beets analyzed this season from some two hundred different localities in the state was, as follows: Glucose, or non-crystallizable sugar .42 per cent; Sucrose, or crystallizable sugar 11.43 per cent.

It is interesting to note that sugar continued to form in the beets up to the close of the season. The average per cent. of sugar contained in the beets for the several periods of harvesting is shown below:

	Glucose	Sucrose
Beets harvested previous to October 15th	.45	10.11
Beets harvested October 15th, to October 30th	.38	12.16
Beets harvested after November 1st	.29	13.00

It is thus demonstrated that the actual average results obtained by the analyses, are considerably below the actual sugar yielding possibilities of the sugar beet crop in our state, inasmuch as a large number of the growers harvested their crop before it had attained its maximum sugar content, and that with the knowledge thus gained as the result of this season's work,

there is every reason for believing that the actual sugar content of the beet during the entire season might be materially increased, yet even under the circumstances controlling this season's work, the average crop of the state was almost equal in sugar content to the average content of the crop produced in the best beet sugar producing regions of Europe.

The result of these analyses, along with the other data that have been collected, will soon be published as a Bulletin.

Waters from several artesian wells have been analyzed, and others are being examined.

Soils have been collected from different parts of the state, and an investigation of their physical and chemical properties has been inaugurated. As outlined the work is to include a general agricultural survey of soils of the state, together with the meteorological conditions of each locality.

The work in meteorology has thus far been undertaken by this division, and as now systematized, it will include for 1892, observations with air temperatures, barometer readings, winds, rainfall, soil temperatures, at depths of from one inch to eight feet, sunshine, hygrometry and a study of soil moisture.

VETERINARY DEPARTMENT.

The past year has been devoted chiefly to compiling a Bulletin on "The Diseases of Sheep," and the investigation of Rheumatism (the so-called Millet Disease.) The work on the latter is still in progress and is being developed as rapidly as possible, though the present indications are that it will engage the attention of the

department for at least from six to nine months of the coming year.

In addition to this the department has investigated two outbreaks of pneumonia among sheep and succeeded in entirely arresting them.

Much time has been devoted to answering the very numerous inquiries, coming from stock owners, and properly within the sphere of this department.

DEPARTMENT OF HORTICULTURE AND FORESTRY.

The following experiments have been undertaken in the department of horticulture and forestry:

1st. Experiments with native fruits. For this purpose a large number of plants of the Buffaloberry, Chokecherry, Gooseberry, Juneberry and Plum, were selected and set out in the station gardens. The varieties selected were the best of which we had any knowledge, having been located the previous year while in fruit. A fine stand of plants is the result of the first years' work in this direction.

2nd. Experiments with cultivated fruits. Experiments with standard varieties of Strawberries, Raspberries, Blackberries, Grapes, Currants, Gooseberries and Apples are being made with a view to determine the best methods of winter protection. This also includes the different methods of pruning and training, in order that the different means of protection may be applied. Under this head the test of windbreaks is to be applied in various ways.

3rd. Experiments with forest trees. Several hundred trees have been set for the purpose of observing hardiness, duration and foliage, and liability to

disease, as well as the effect of different systems of pruning and cultivation.

4th. Experiments with grasses. Thirty-five kinds have been sown with a view of determining which will best endure cold weather and drought, and make a good growth the first season. Only those having a good nutritive value are being tested.

This line of work has received the special sanction and co-operation of the United States Department of Agriculture, and was furthered by a special appropriation of $500.00, placed at the disposal of the station for its conduction during the past season, and a like sum has been devoted to a continuation of this line of investigation during the season of 1892.

5th. Vegetables. The work so far, except as a variety test, has not been experimental.

BOTANICAL DEPARTMENT.

The following is a summary of the conditions and work of the botanical department for the year ending January 31st, 1892.

The department has assigned to it, in connection with the botanical work of the college, a well formed, well lighted and equipped general botanical laboratory, with offices and storeroom in connection, and also a well arranged room given wholly to special work of the station, the room being supplied with the more necessary apparatus and appliances for micological and bacterial investigation. It is hoped to add to these appliances for the study of plant life as the subjects under investigation demand. A small but convenient plant house is a new and much needed acquisition to our working facilities.

1
2
3

The department has a supply of the more necessary botanical works.

Work of the Department. Two Bulletins have been sent out, No's. 1 and 4. Bulletin No. 1 represents a compilation of the general knowledge concerning the "Grain Smuts," together with definite instructions as to the manner of procedure in preventing the occurrence of the disease upon our different cereal crops. Bulletin No. 4 deals with three subjects, viz: "Potato Scab, and Possibilites of Prevention," "A Disease of Beets Identical with Deep Scab of Potatoes," and "Hastening the Maturity of Potatoes." The Bulletin is chiefly dovoted to the disease of "Potato Scab," and on this point represents the results of three years of investigation as to the character of the disease and possibilities of treatment. The results point to the possibility that there are two forms of the disease, "Surface" and "Deep Scab," yet that both are originated by parasitic plants and yield alike easily to treatment.

Field experiments with potatoes made this year year demonstrate that the germs producing the disease may continue in the ground from the last crop, and in connection with the study of the "Deep Scab," as found on sugar beets, it is shown that they may remain in the ground as long as five years without the intervention of a potato crop. Treatment processes are not as fully developed as wished, yet it is clearly demonstrated that such may be made economically effective. (See plate accompanying this report.) Each pile represents the product of twelve hills, grown under identical conditions, from like seed —(1.) Untreated seed; (2.) Treatment with Potas-

sium sulphate solution; (3.) Treatment with corrosive sublimate solution. (Complete details are given in Bulletin No. 4.)

An attempt has been made to get at more definite facts concerning the rusts which attack our cereals. This work has been conducted under three general headings,—Cultural Investigation, The Wintering of Heteroecismal Rusts, and Co-operative Investigation. The results of the work, as fast as they can be compiled, indicate that Heteroecious rusts do not winter in the tissues of their hosts in this region, and further that the attack upon our cereals is general through the uredospores. (See Agricultural Science, December 1891.)

As opportunity affords a full collection of the state flora is being made, especial attention being given to forage plants.

Aside from the work already reported upon, careful record has been made of numerous preliminary tests, of notes and observations upon subjects which to date the department has not been fully prepared to properly consider.

Conclusion. The Director of the station desires again to particularly emphasize the fact that we are endeavoring by every means justifiable under the laws controlling the institution to practically assist the farmers of North Dakota, and make the station a factor of vital importance in assisting them in the successful conducting of their farms. We desire it particularly understood that the station belongs to the farmers of the state, and whatever effort it may make in their behalf is justly their due. We wish them to familiarize themselves with the work

of the institution. We desire them to understand especially that by a law of Congress, the publications of the station must be forwarded to every citizen of the state requesting the same, and it gives us constant pleasure to place the names of farmers on our mailing list for the regular receipt of station Bulletins. We trust, however, that they will not fail to recognize the element of time required in the organization and conducting of such an institution as this to a position from which the full mead of good may be reasonably expected. The work of the station during the past year has necessarily been hampered in many ways by the circumstances under which it was unavoidably conducted, this having been particularly the case through the lack of permanent quarters and the absolute absence of farm buildings of all kinds. These difficulties we trust, however, will be removed during the coming season, so that the institution will be in a position to more fully enter upon the actual accomplishment of its object of practically aiding the farmers of North Dakota.

H. E. STOCKBRIDGE,
Director.

January 30th, 1892.

The Agricultural Experiment Station of North Dakota, in Account with the United States for the Year Ending June 30th, 1891.

Dr.

To General Appropriation	$15,000.00
To Special Appropriation	2,500.00
	$17,500.00

Cr.

Apparatus and Fixtures	$ 1,482.85
Books	186.33
Freight and Express	231.39
Fuel	52.85
Improvements	18.00
Labor	1,382.78
Postage	79.27
Printing	265.25
Rent	2,081.00
Repairs	7.50
Salaries	3,169.43
Stationery	149.33
Supplies	1,522.52
Telegraph and Telephone	100.28
Traveling Expenses	795.17
General Expense	117.90
Furniture	303.95
Farm Tools	54.20
Building	3,000.00
Balance	2,500.00
	$17,500.00

The above is a correct statement of receipts and expenditures of Government appropriations for the North Dakota Agricultural Experiment Station, for the year ending June 30th, 1891, as taken from my books.

WM. G. HAYDEN,
Accounting Officer for the Board of Control.